

**REMARKS**

Claims 13-33 were previously pending in the application. By the Amendment, Claims 13-33 remain unchanged, and new claim 34 is added.

Applicants gratefully acknowledge the Examiner's granting an interview with Applicant's representatives on January 8, 2008. During the interview and according to the Interview Summary, the Applicants discussed the applied art including US Patent No. 4,161,557 to Suzuki et al. (Suzuki '557), US Patent No. 4,738,549 to Plimpton (Plimpton '549), US Patent No. 6,385,869 to Mac Williams et al. (MacWilliams '869), GB Patent No. 2,318,870 to Hicken (Hicken '870 GB) and US Patent No. 4,779,995 to Santacaterina et al. (Santacaterina '995); and proposed that the present invention is directed to a combination of a backing, a thermochromic layer, and a casting protective layer. Applicants proposed to submit new or amended claims more specifically directed to the noted features. The Examiner indicated to Applicant's representatives that further search and/or consideration might be necessary.

The claims stand rejected under the cited prior art of record as follows:

- Claims 13, 14 and 19 were rejected under 35 USC §102(b) as being anticipated by US Patent No. 4,161,557 to Suzuki et al. (Suzuki '557).
- Claims 13, 14 and 19-22 were rejected under 35 USC §102(b) as being anticipated by US Patent No. 4,738,549 to Plimpton (Plimpton '549).
- Claims 15-17 were rejected under 35 USC §103(a) as being unpatentable over Suzuki '557.

- Claims 16-18 were rejected under 35 USC §103(a) as being unpatentable over Plimpton '549.
- Claims 23-24 were rejected under 35 USC §103(a) as being unpatentable over Plimpton '549 in view of US Patent No. 6,385,869 to Mac Williams et al. (MacWilliams '869).
- Claims 25-28 were rejected under 35 USC §103(a) as being unpatentable over Plimpton '549 in view of GB Patent No. 2,318,870 to Hicken (Hicken '870 GB).
- Claims 29-30 were rejected under 35 USC §103(a) as being unpatentable over Plimpton '549 and Hicken '870 GB in view of MacWilliams '869.
- Claim 31 was rejected under 35 USC §103(a) as being unpatentable over Plimpton '549 and Hicken '870 GB in view of WO Patent No. 01/46661 to Marques et al. (Marques '661 WO).

Independent Claim 13 recites a temperature-indicating element for a refrigeration device, having a backing. A thermochromic layer is applied to the backing for indicating a predetermined desired temperature. The thermochromic layer is enclosed between said backing and a transparent protective layer.

Independent Claim 25 recites a refrigeration device including a temperature-indicating element. The temperature-indicating element has a backing and a thermochromic layer is applied to the backing. The thermochromic layer has thermochromic pigment elements that change color at about +4° C for visually indicating a predetermined desired temperature. The thermochromic layer is enclosed between the backing and a transparent protective layer formed from a casting compound.

In substantial contrast to the temperature indicating element recited in Claim 13 of the present application and the refrigeration device recited in Claim 25 of the present application, the Suzuki '557 reference discloses a complex structure for polyvinyl butyral-liquid crystal film forming compositions and films that change color according to the temperatures encountered. There, 2, 3 or 4 component liquid crystal compositions are employed for providing a desired color response, a meso-phase or color-play temperature range at a desired temperature level and having a suitable width of temperature range and/or desired glass transition temperature. Preferably, the liquid crystals are selected to provide a color response in the meso phase range changing with increasing temperature from red through orange, yellow, green and blue to violet in the visible spectrum as the results of the light reflections are scattering by the liquid crystals (see Col. 4, lines 2-9, of Suzuki '557). In contrast to the present invention, Suzuki '557 uses a liquid crystals and neither teaches nor discloses the desirability of using thermochromic pigments as recited in independent claims 13, 25, and 32 of the present application. Moreover, Suzuki '557 does not provide an indication that a particular temperature level has been achieved but rather provides an arrangement in which different ranges are provided for indication of a temperature in a particular range.

The Office Action asserts that the Suzuki '557 patent discloses a temperature-indicating element for a refrigeration device. As seen in the Suzuki '557 reference, compositions number 14 through 16 [from a table of compositions useful in the Suzuki '557 patent], are useful, *inter alia*, for leak detection in refrigeration. Such leak detection does not provide the temperature indication inside the refrigeration device as provided by the present invention and, accordingly, reference to the Suzuki '557 patent is misplaced. Suzuki '557 is a patent directed to a chemical formulation with only hints of use in a refrigeration setting and that hint is as outlined above, that a composition from a table of useful compositions in the Suzuki '557 is useful for leak detection in refrigeration.

Nothing about the Suzuki '557 reference indicates that it can be used for a generalized temperature indicator in a refrigeration device such as a household refrigerator.

Therefore, Suzuki '557 does not anticipate the present invention and, since Suzuki '557 does not disclose or suggest the present invention, the Suzuki '557 reference cannot be asserted to render the present invention obvious.

Plimpton '549 discloses a thermometer for immersion in a swimming pool. In an arrangement similar to that of Suzuki '557, Plimpton '549 discloses the use of liquid crystals to provide a temperature indication with a certain range, unlike the arrangement of the present invention that utilizes thermochromic pigments specifically chosen for the ability to change color at  $+4^{\circ}\text{C}$ . In substantial contrast, Plimpton '549 chooses unknown liquid crystal agents that are operable from about  $15^{\circ}\text{F}$  to about  $160^{\circ}\text{F}$  (see Col. 2, lines 18-20, of Plimpton '549). Once again, like the device of Suzuki '557, the Plimpton '549 device teaches a liquid crystal display that indicates temperature over a desired range (see Column 3, line 7-10, of Plimpton '549). Accordingly, the Plimpton '549 device does not provide an indication that a specific temperature has been achieved or is lower by using a visual perceptible symbol that is present when the temperature is  $+4^{\circ}\text{C}$  and absent when the temperature is lower than  $+4^{\circ}\text{C}$ .

The Plimpton '549 apparatus lacks the structure disclosed in the present claims. There is no backing as was cited in the present claims such that the pool thermometer could be useful in a refrigerator. As noted, the adhesive backing structure may be provided to permit placement of the thermometer wherever desired. However, according to Plimpton '549, a bore 45 through the casing 14 will allow attachment of a cord or the like so the thermometer may be hung from the side of a pool or hot tub to be drawn upward for temperature readings and then replaced into the water (Col. 4, lines 25-30). The fair teachings of the

Plimpton '549 reference, or most any pool thermometer are to use a tether cord and take readings remotely rather than having to be in the water to determine the numerical water temperature.

Accordingly, the Plimpton '549 device cannot be said to anticipate or render the present invention obvious either alone or in any combination with any of the cited references.

Santacaterina '995 adds nothing to the Plimpton '549 discussion. Santacaterina '995, which was discussed during the interview, discloses a thermometer for medical use with a temperature scale similar to the temperature scale in the Plimpton '549 device. However, the carrier is different to allow its use as a medical device. Unlike Plimpton '549, and Santacaterina '995, the present invention provides a useful indication of a generalized temperature rather than a specific temperature for generalized interpretation. The icons that are formed in the covering provide food-like shapes so that when the food-like shape is darkened by the thermochromic layer achieving a certain temperature, the user can see at a glance what food may be stored, this without any knowledge of the food properties. If the Santacaterina '995 or Plimpton '549 thermometers were used in the refrigerator setting, there would be no indication other than a numerical indication, of the temperature which may or not be interpreted correctly based on the knowledge of the reader. Accordingly, neither Plimpton '549 nor Santacaterina '995 discloses, teaches or suggests the structural features outlined in the claims of the present application.

For these and other reasons, Suzuki '557 does not disclose the subject matter defined by independent Claim 13. Therefore, Claim 13 is allowable. Claims 14 and depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter. Further, for these and other reasons, Plimpton '549 does not disclose the subject matter

defined by independent Claim 13. Therefore, Claim 13 is allowable. Claims 14 and 19-22 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Suzuki '557 does not teach or suggest the subject matter defined by Claims 15-17. Therefore, Claims 15-17 are allowable. In addition, Claims 15-17 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549 does not teach or suggest the subject matter defined by Claim 16-18. Therefore, Claims 16-18 are allowable. Further, Claims 16-18 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549 and MacWilliams '869, either alone or in combination, do not teach or suggest the subject matter defined by Claims 23-24. Therefore, Claims 23-24 are allowable. Also, Claims 23-24 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549 and Hicken '870 GB, either alone or in combination, do not teach or suggest the subject matter defined by independent Claims 25-28. Therefore, Claims 25-28 are allowable. In addition, Claims 25-28 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549, Hicken '870 GB and MacWilliams '869 either alone or in any combination, do not teach or suggest the subject matter defined Claims 29-30. Therefore, Claims 29-30 are allowable. In

addition, Claims 29-30 depend from Claim 13 and are allowable for the same reasons and also because they recite additional patentable subject matter.

For these and other reasons, Plimpton '549, Hicken '870 GB, and Marques '661 WO either alone or in combination, do not teach or suggest the subject matter defined by Claim 31. Therefore, Claim 31 is allowable.

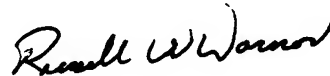
New independent Claim 34 recites a temperature-indicating element for refrigeration device, having a backing having an adhesive material applied thereto for mounting the temperature-indicating device at a single predetermined location in a food compartment of a refrigeration device. A thermochromic layer is applied to the backing and disposed between the backing and a transparent protective layer for indicating a plurality of predetermined food-based threshold temperature values. A covering member is fitted over the thermochromic layer. The covering member includes a plurality of openings formed therein and disposed at predetermined locations to be in registry with predetermined threshold temperature value indications along the thermochromic layer. The openings are shaped to resemble food items associated with the food-based threshold temperature values.

The prior art, particularly Suzuki '557 and Plimpton '549 do not disclose a temperature-indicating element as recited in Claim 34. More specifically, the prior art does not disclose, among other things, such a temperature-indicating element having an adhesive backing layer for mounting at a single predetermined location in a food compartment of a refrigeration device that provides threshold temperature indication using a thermochromic layer covered by a covering member having openings formed therein that are shaped to resemble food items associated with the food-based threshold temperature values. Therefore, Applicants respectfully request allowance of independent Claim 34.

**CONCLUSION**

In view of the above, entry of the present Amendment and allowance of Claims 13-34 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,



Russell W. Warnock

Registration No. 32,860

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BSH Home Appliances Corp.  
100 Bosch Blvd.  
New Bern, NC 28562  
Phone: 252-672-7927  
Fax: 714-845-2807  
russ.warnock@bshg.com